What is claimed is:

DOMESTON STATES

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A method to determine sperm activity comprising the steps of: (a) contacting an appropriate concentration of human zona pellucida protein 3 (appropriate amount) of sperm conditions permitting the formation of complex between the human zona pellucida protein 3 and the sperm; and (b) determining the complex form.

2. The method of claim 1, wherein the concentration of the human zona pellucida protein 3 is 0.01 nanograms per ml to 10,000 nanograms per ml.

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The method of claim 1, wherein concentration is 0.01 nanograms per ml to 5,000 nanograms per ml.

- 25 4. The method of claim 1, wherein concentration is 0.01 nanograms per ml to 2,500 nanograms per ml.
- 5. method of claim 1, wherein the 30. concentration is 0.01 nanograms per ml to 1,000 nanograms per ml.
 - 6. method of. 1, claim wherein the concentration is 0.01 nanograms per ml to 500 nanograms per ml.
 - 7. The method of claim 1, wherein the concentration is 0.01 nanograms per ml to 100 $\,$ nanograms per ml.

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8. The method of claim 1, wherein the concentration is 0.01 nanograms per ml to 30 nanograms per ml.

9. The method of claim 1, wherein the human zona pellucida protein 3, or the sperm, is fixed on a matrix.

10. A method to determine sperm activity comprising the steps of (a) contacting an appropriate concentration of human zona pellucida protein 3 with an appropriate amount of sperm under conditions permitting an acrosome reaction to occur; and (b) determining the extent of the acrosome reaction.

- 11. The method of claim 10 wherein the concentration of the human zona pellucida protein 3 is 0.01 nanograms per ml to 10,000 nanograms per ml.
- 12. The method of claim 10 wherein the concentration is 0.01 nanograms per ml to 5,000 nanograms per ml.
- 13. The method of claim 10, wherein the concentration is 0.01 nanograms per ml to 2,500 nanograms per ml.
- 35 14. The method of claim 10, wherein the concentration is 0.01 nanograms per ml to 1,000 nanograms per ml.

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- 5 15. The method of claim 10, wherein the concentration is 0.01 nanograms per ml to 500 nanograms per ml.
- 16. The method of claim 10, wherein the concentration is 0.01 nanograms per ml to 100 nanograms per ml.
- 17. The method of claim 10, wherein the concentration is 0.01 nanograms per ml to 30 nanograms per ml.
 - 18. The method of claim 10, wherein the human zona pellucida protein 3 or the sperm is fixed on a matrix.
 - 19. A diagnosis kit for sperm activity comprising compartments with (a) an appropriate amount of human zona pellucida protein 3 and (b) the reagents used for establishing the conditions for allowing the binding of sperm.
 - 20. A diagnosis kit for sperm activity comprising compartments with (a) an appropriate amount of human zona pellucida protein 3 and (b) the reagents used for establishing the conditions for allowing an acrosome reaction.
- 21. A diagnosis kit for sperm activity comprising three (3) compartments with (a) an appropriate amount of human zona pellucida protein 3; (b) the reagents used for establishing the conditions for allowing the binding of sperm; and (c) the reagents used for establishing the conditions for allowing an acrosome reaction.